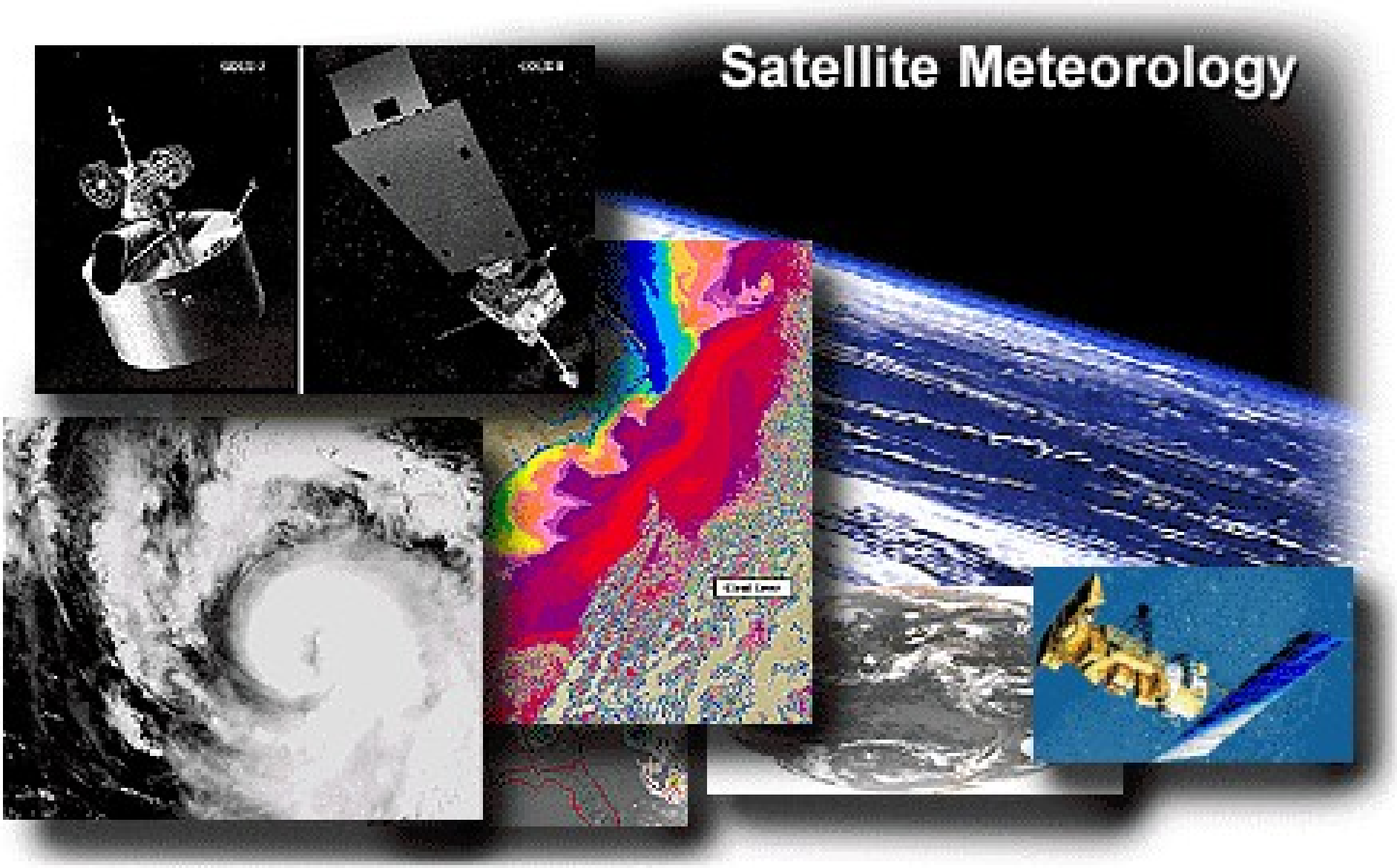
Satellite Interpretation

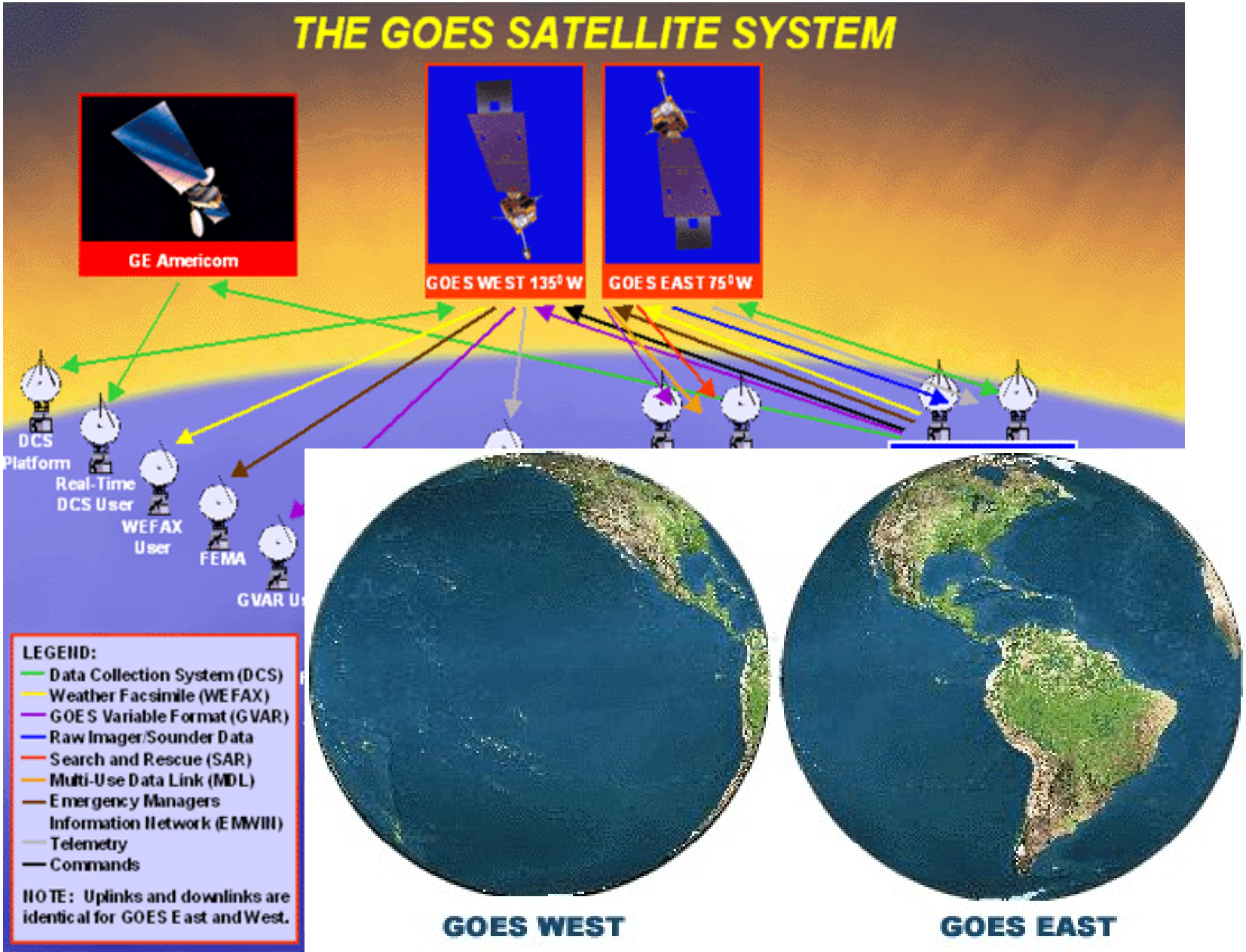


Satellite Interpretation

GMS Geostationary Satellite

- CENTERED AT 140° EAST
- EFFECTIVE FOV FROM 80°E to 160°W
- COVERS THE WESTERN PACIFIC and EASTERN INDIAN OCEAN AORS

Satellite Interpretation



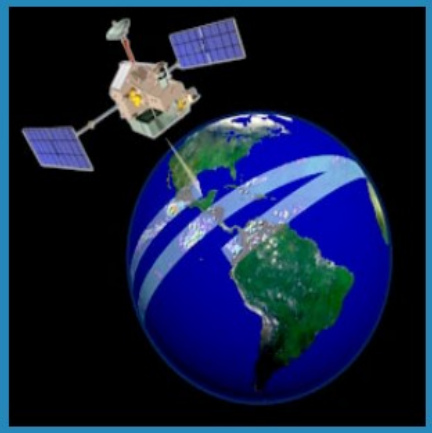
Satellite Interpretation

DMSP

- POLAR ORBITING SATELLITE
- Passive Microwave
- 98° inclination angle
- Sun synchronous orbit
- Best coverage near the poles

TRMM

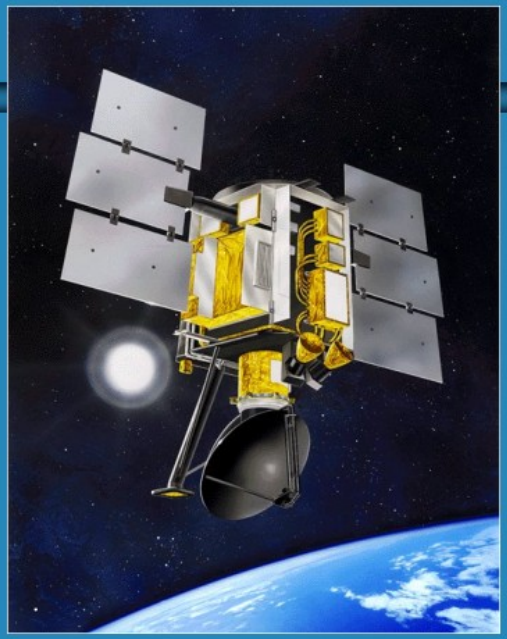
- EQUATORIAL ORBITING SATELLITE



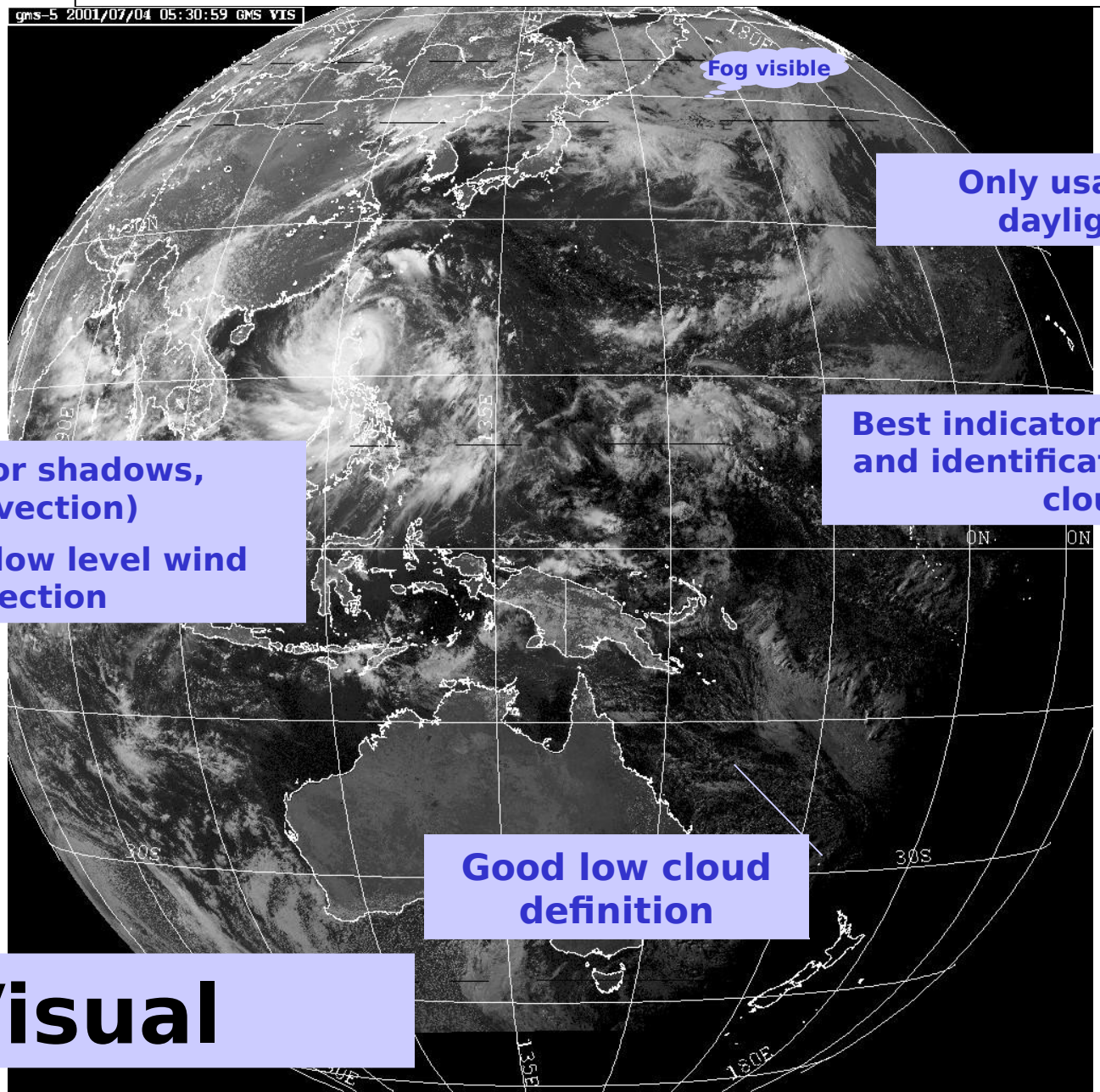
Quikscat

Scanning Geometry:
- conical scan
- 1800 km continuous swath

Orbit:
- sun-synchronous
- ascending node near 6 AM
- 803 km altitude



Satellite Interpretation



Only usable during daylight hours

Best indicator of low clouds and identification of fog vs. clouds

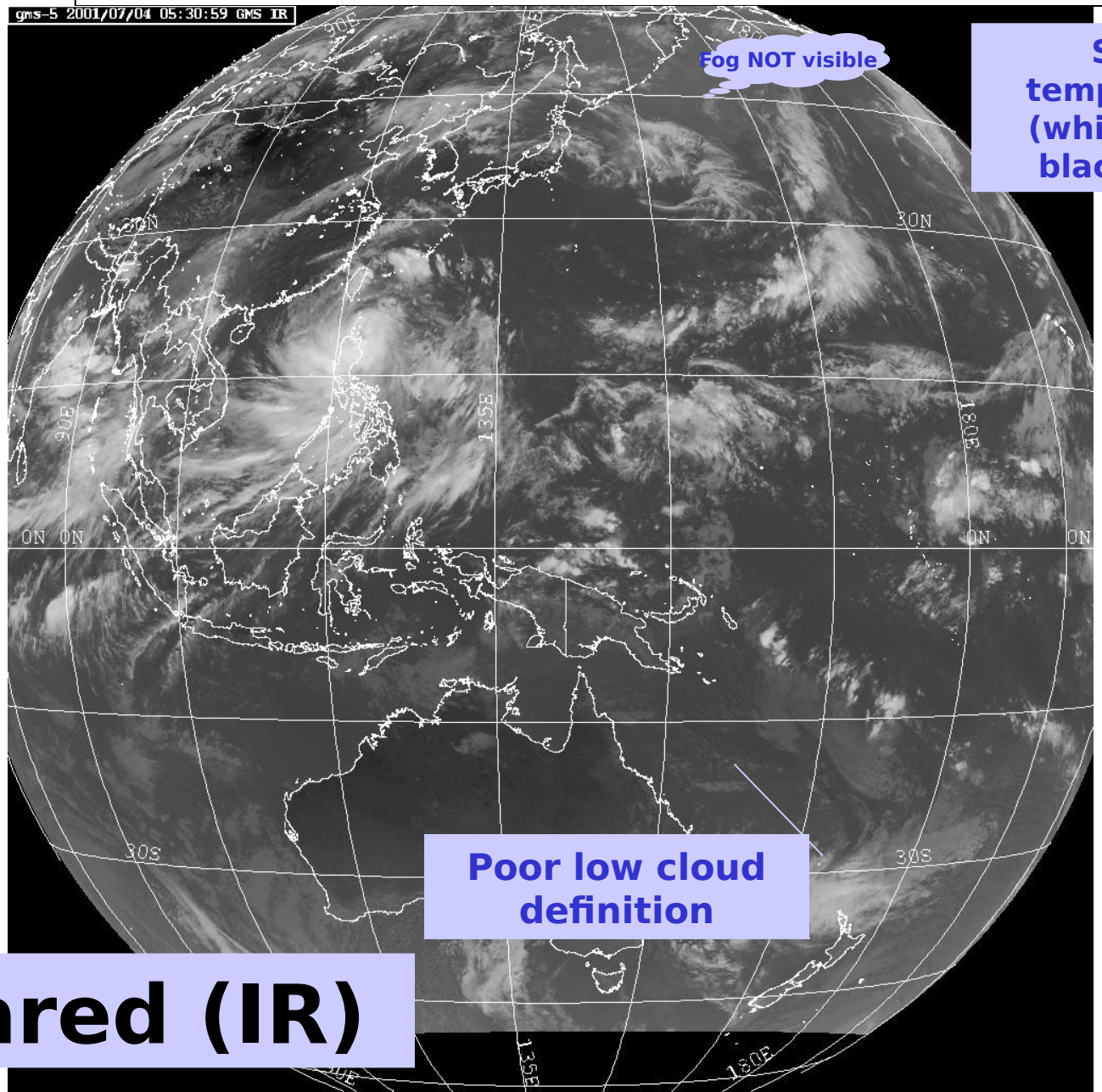
Useful for shadows, (convection)

Useful for low level wind direction

Good low cloud definition

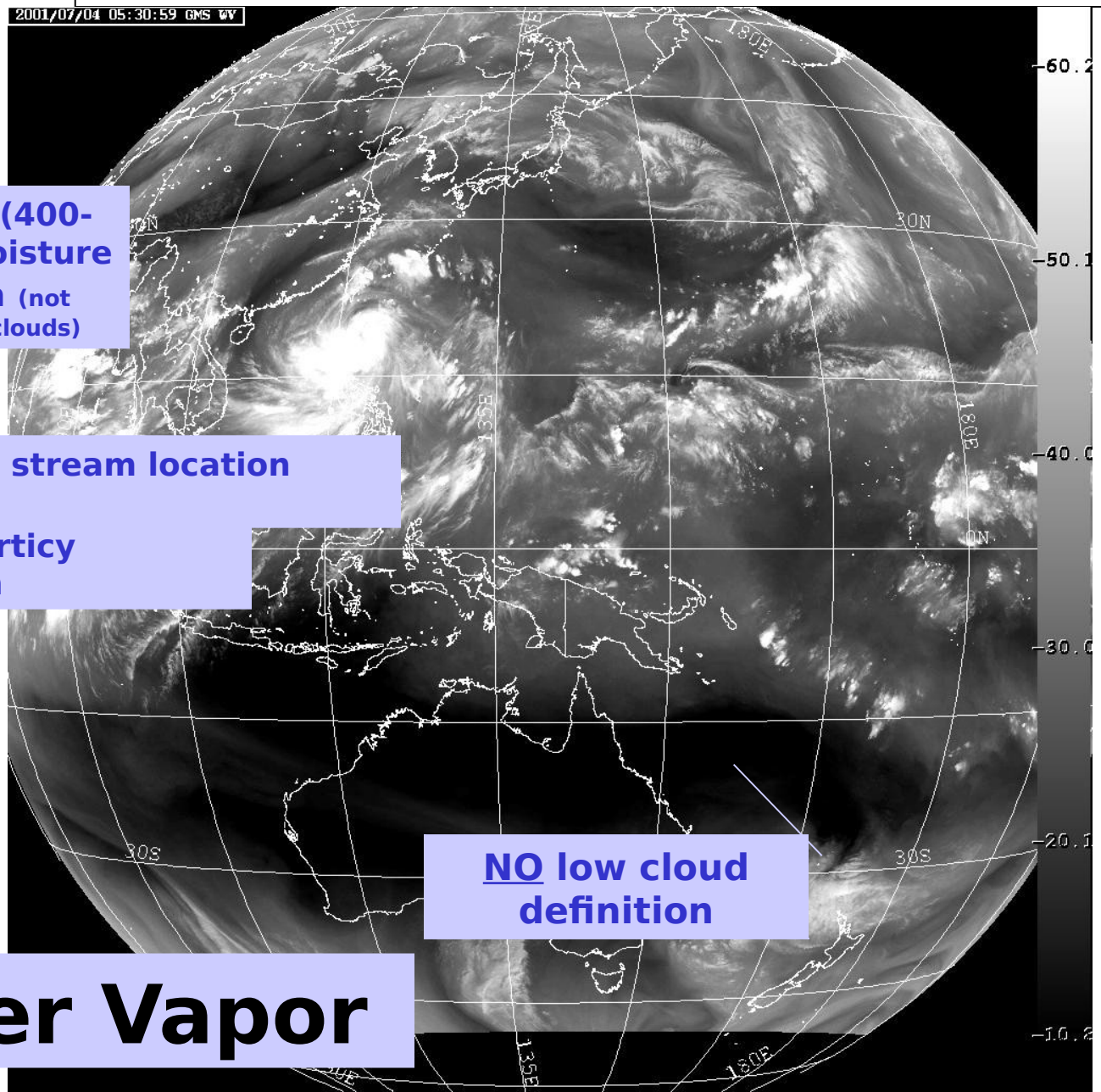
Visual

Satellite Interpretation



Infrared (IR)

Satellite Interpretation



Mid level (400-600mb) Moisture is shown (not necessarily clouds)

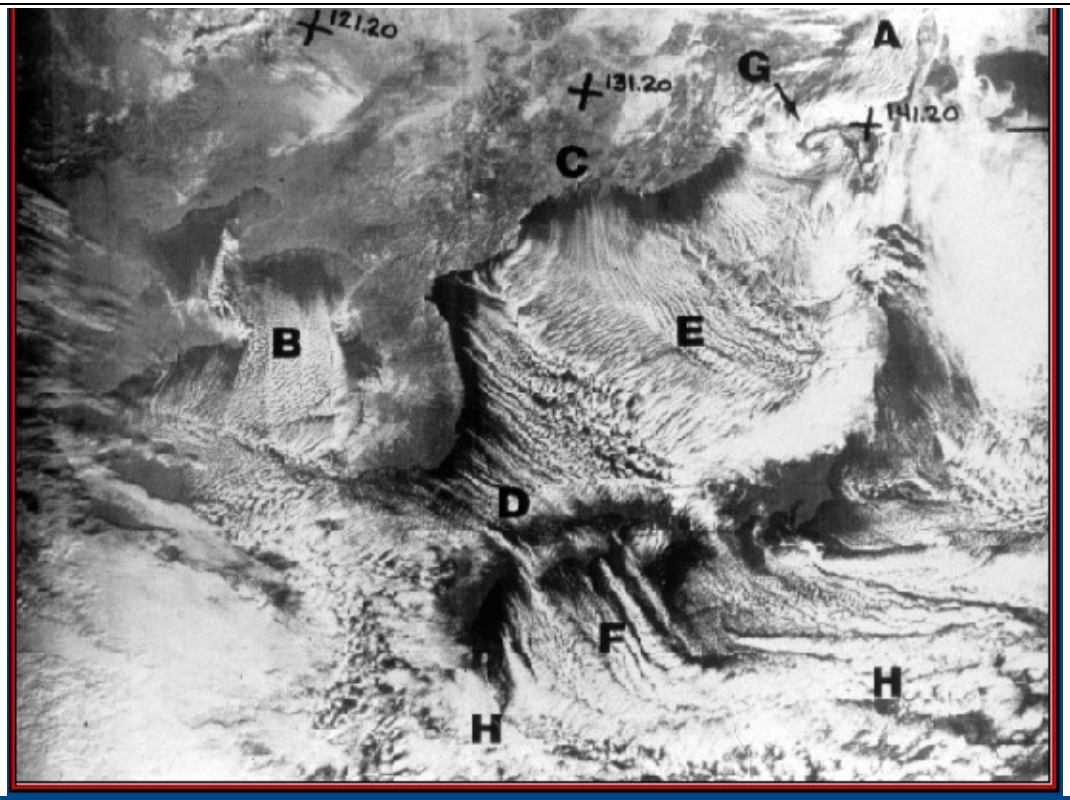
Useful for jet stream location ("dry slot")

Useful for vorticy identification

NO low cloud definition

Water Vapor

Satellite Interpretation



CLOUD STREETS

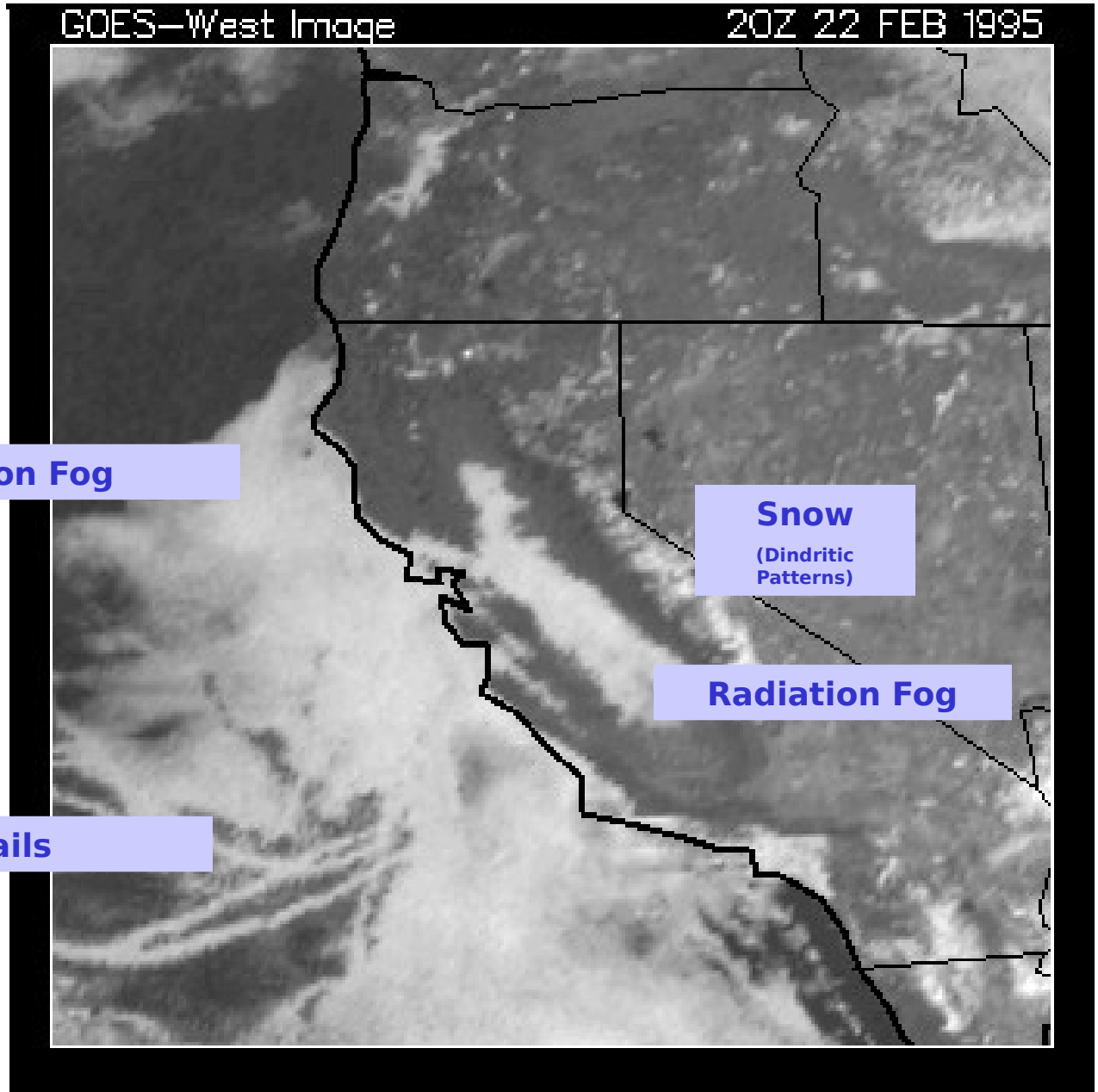
Frequently during winter months, outbursts of very cold air move from East Asia across Japan. These show up clearly on satellite images over the waters off the east Asian coasts. In this image, cloud streets indicating north winds are seen at (A), (B) and (C). Streets indicating northwest winds occur at (D), (E), and (F). Most of these directional changes are due to the blocking effect of mountains, which divert the cold, stable air around them. However, a small "polar low" can be seen at (G). Farther offshore near (H), the clouds become larger and flatter, indicating a change to stratocumulus. These stratocumulus cloud lines are not usually parallel to the low level winds.

Satellite Interpretation

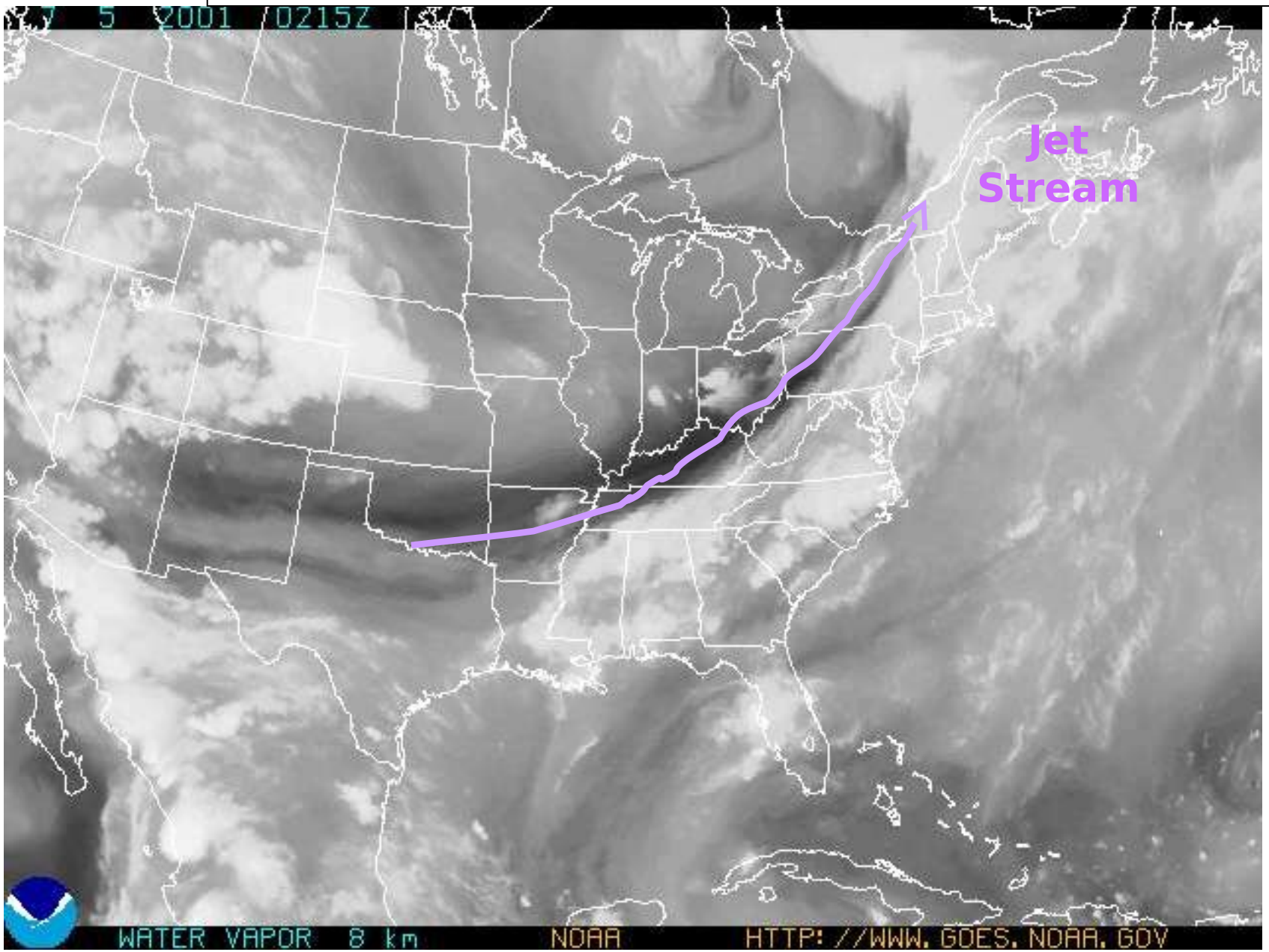
OPEN CELLS

With a cold, unstable air mass over warmer ocean waters, "open cell" convection is most likely to occur. Small, short-lived rain or snow showers usually accompany this pattern. As the shower dissipates it leaves a ring-shaped boundary marking the outer edge of its precipitation-cooled air. Along this boundary, new clouds often develop. Under calm conditions the boundary will be fairly circular. However, when it is windy, the convection along the trailing edge of the cloud ring is often absent. Along the leading edge, larger clouds occur, and where one ring intersects its neighbor, taller convection typically develops. In this visual image, the area around (A) is full of such cells. Many of them are open to the north, presenting somewhat of a horseshoe shape, indicating strong winds from the north.

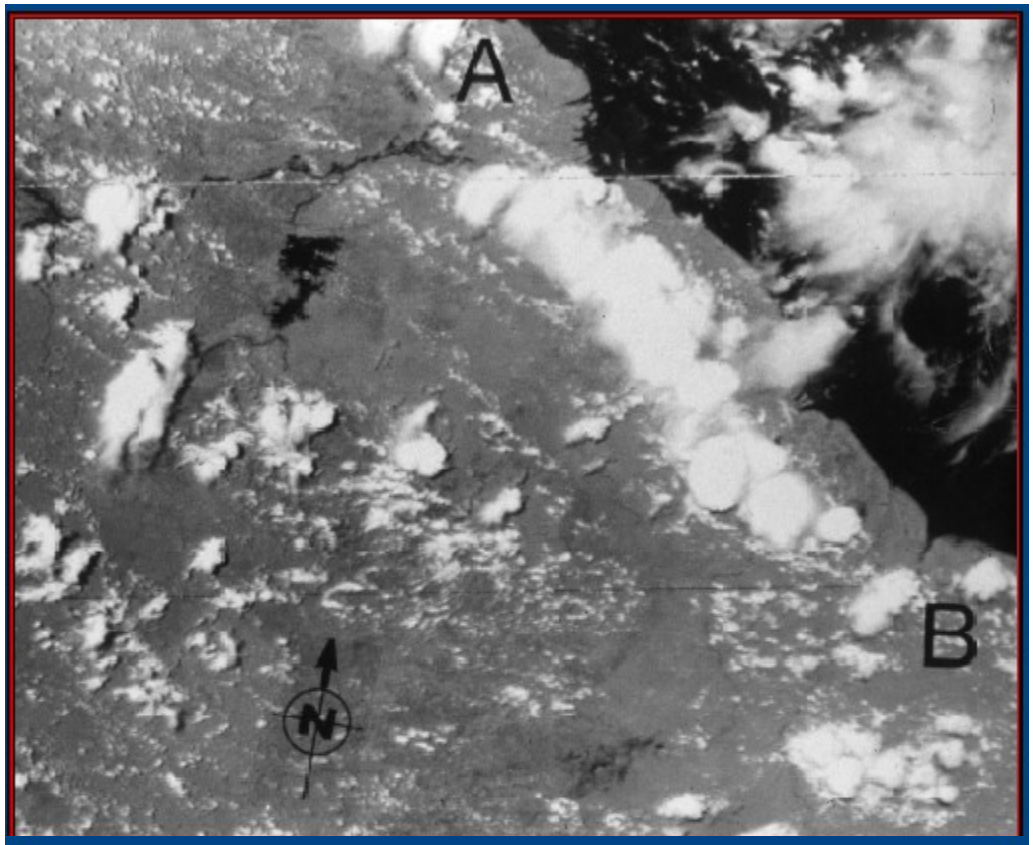
Satellite Interpretation



Satellite Interpretation



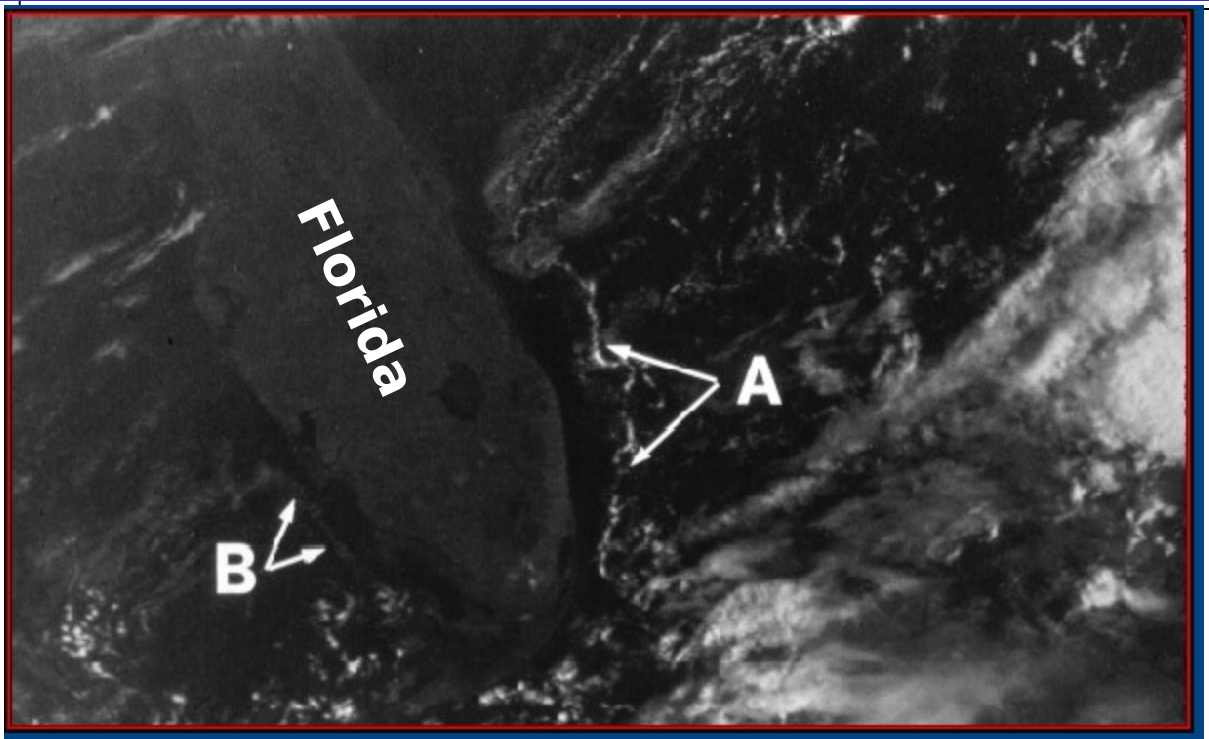
Satellite Interpretation



SEA BREEZE

The prevailing winds in September over northeastern South America are from the east and southeast. The sea breeze during the day tends to modify the prevailing midday flow near the coast, creating east to northeast winds. In this image we see thunderstorms in a line along the sea breeze front (A-B), in coastal Guyana.

Satellite Interpretation

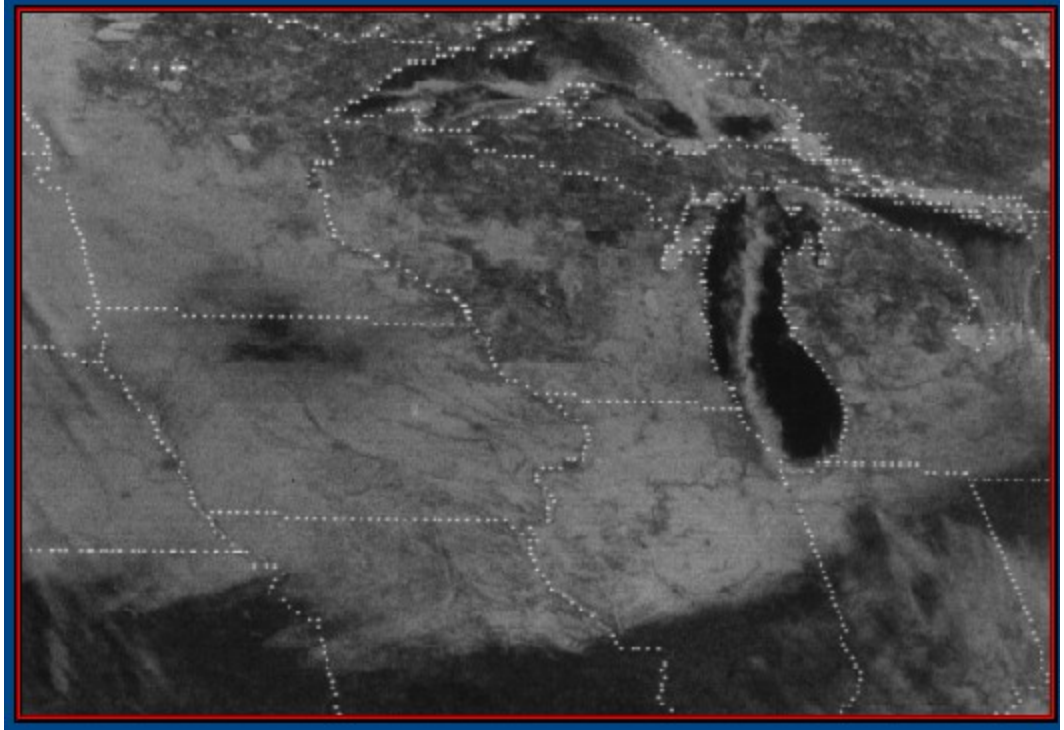


LAND BREEZE

At night, convection over land usually ceases as the land cools. If the air over the land is dry, cooling is often quite rapid. When the air over the land becomes cooler than the surrounding waters, the cool air flows seaward in what is called a land breeze. A line of cumulus is sometimes located at its leading edge.

In this image of Florida, taken early in the day (0800 LST), skies are clear over the land and a line of convective clouds can be seen off the southeast coast (A). A weaker line is seen off the southwest coast (B). In each case the winds are blowing offshore perpendicular to the coast.

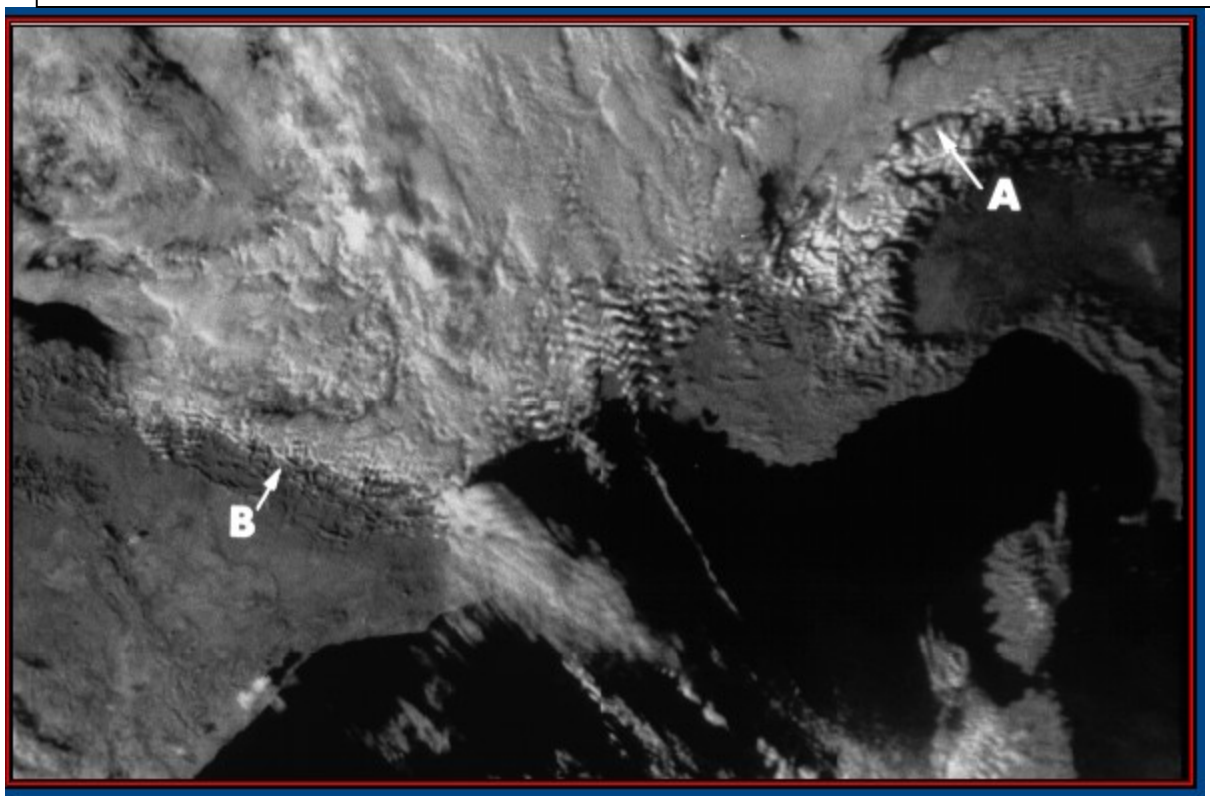
Satellite Interpretation



CONVERGING LAND BREEZE

Land breezes from the cold, snow-covered east and west shores of Lake Michigan are converging over the warmer lake to form a continuous line of cumulus clouds. The general wind flow is from the north. Heavy snow fell near Chicago on this day.

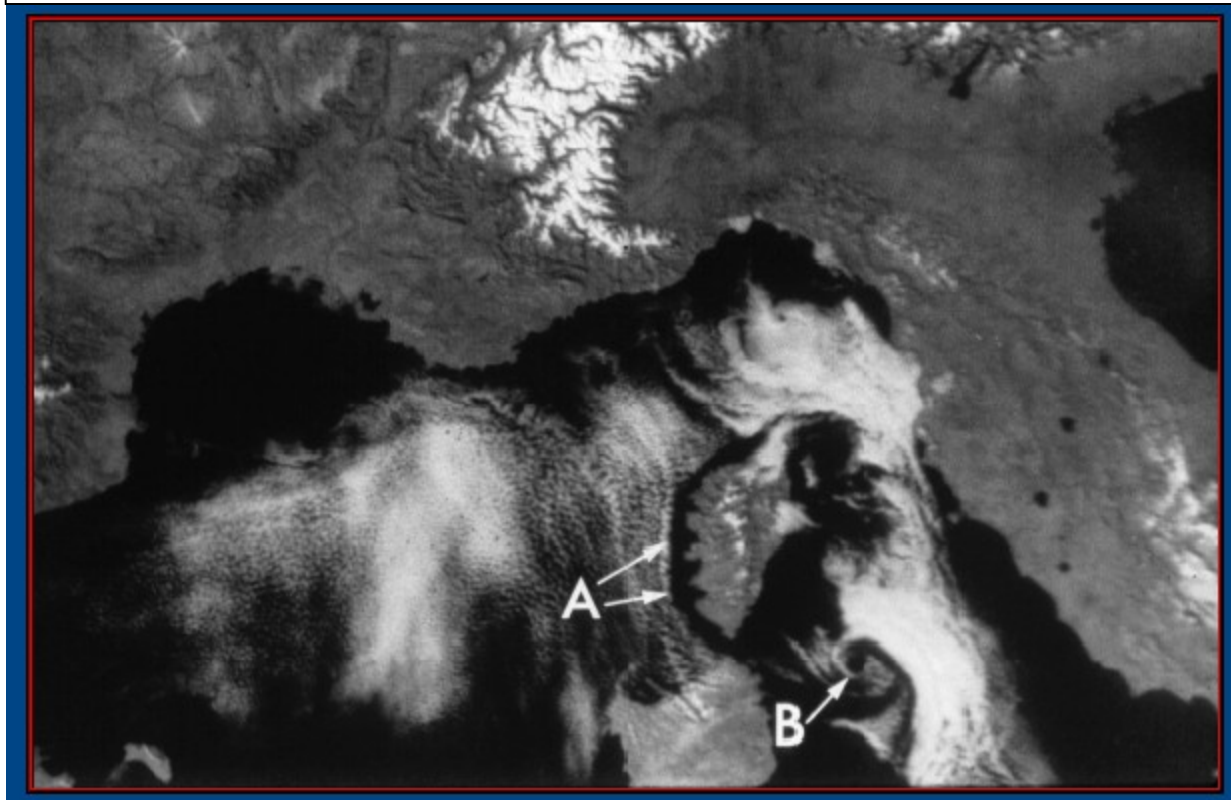
Satellite Interpretation



MOUNTAIN BARRIERS

High mountain ranges are very effective barriers to the passage of low clouds and fog. The Alps (A) and the Pyrenees (B) often block northerly surface winds. This image, centered on France, shows such blocking. Notice the fog and low stratus north of the mountains, and clear skies to the south.

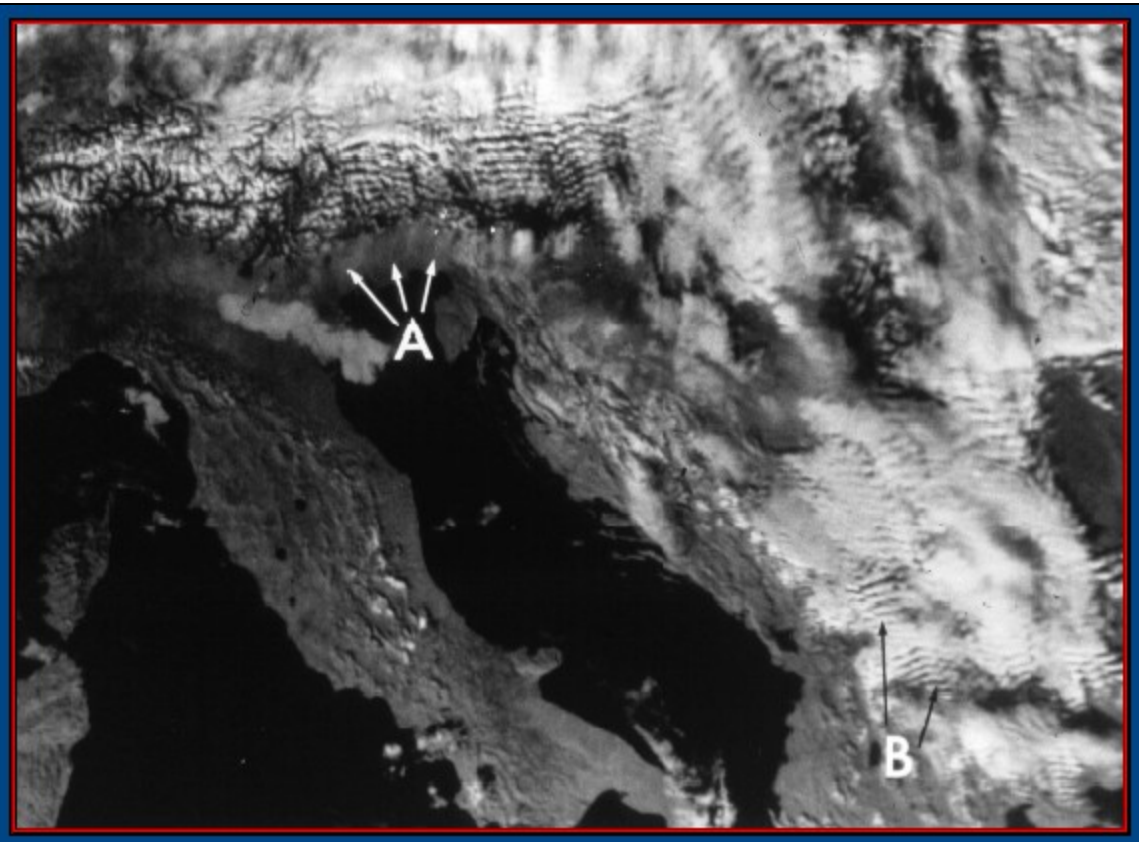
Satellite Interpretation



ISLAND BARRIER

Here, convection is trapped under an inversion that lies below the mountain tops of Corsica. The island influences the cloud pattern in two ways. First, it diverts the flow around the island, creating a cloud line bowing outward from the island (A). The island also creates downwind swirls as seen in the eddy at (B).

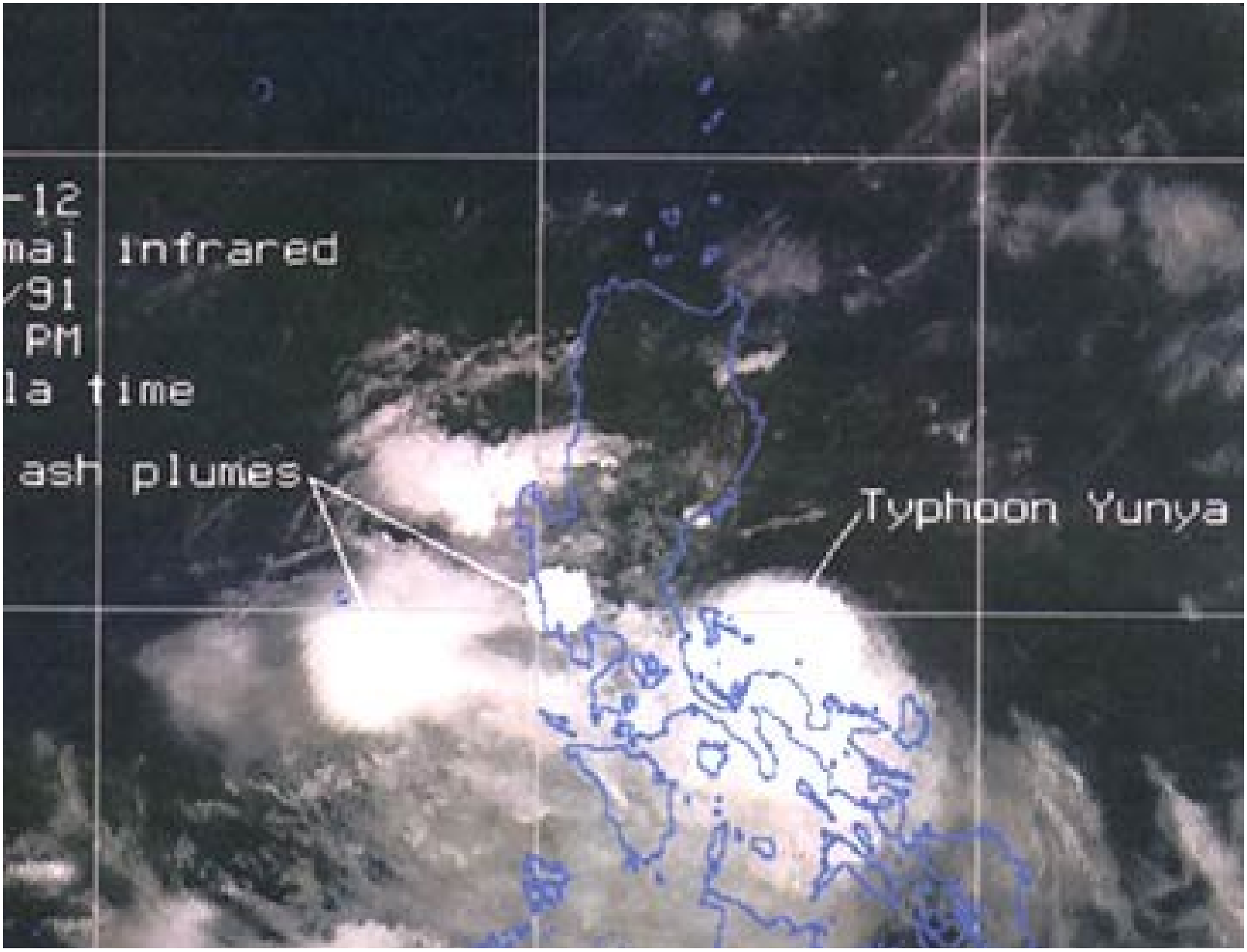
Satellite Interpretation



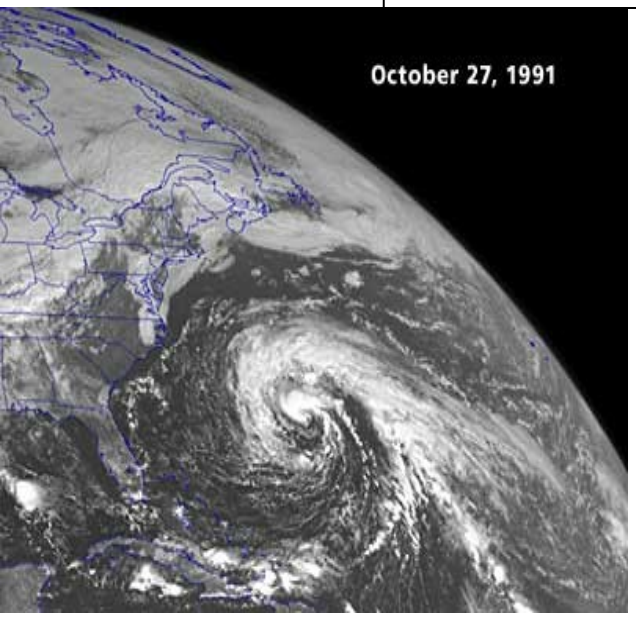
LEE WAVES

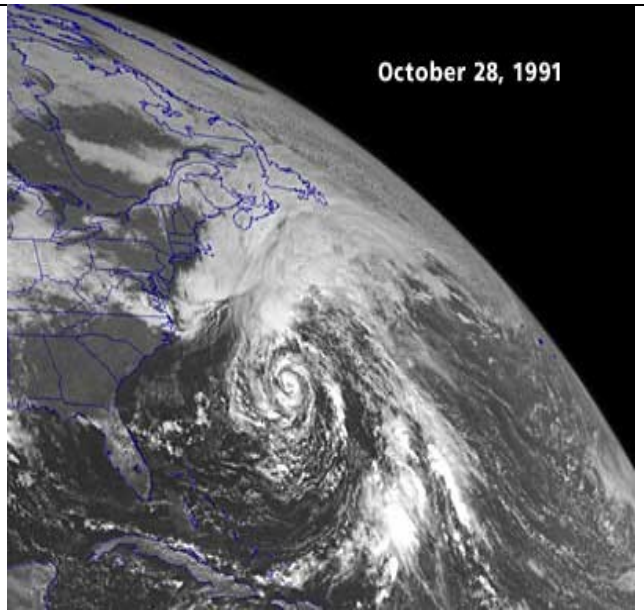
Strong northerly winds blowing over the eastern Alps are indicated by widespread lee wave clouds which lie perpendicular to the winds in this image. Some mountain-induced cirrus can be seen at (A). These cirrus and the downwind disappearance of the lee waves often indicate strong down slope surface winds. The mountain lee waves over southern Yugoslavia (B) indicate that the strong winds extend to that area as well.

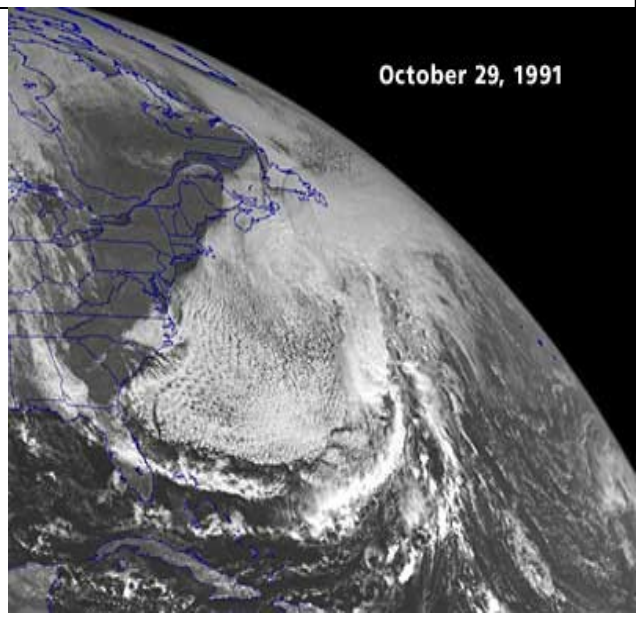
Satellite Interpretation

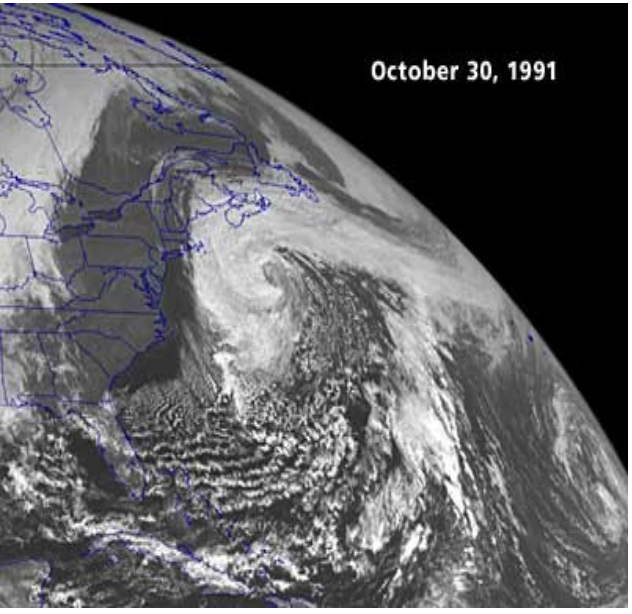


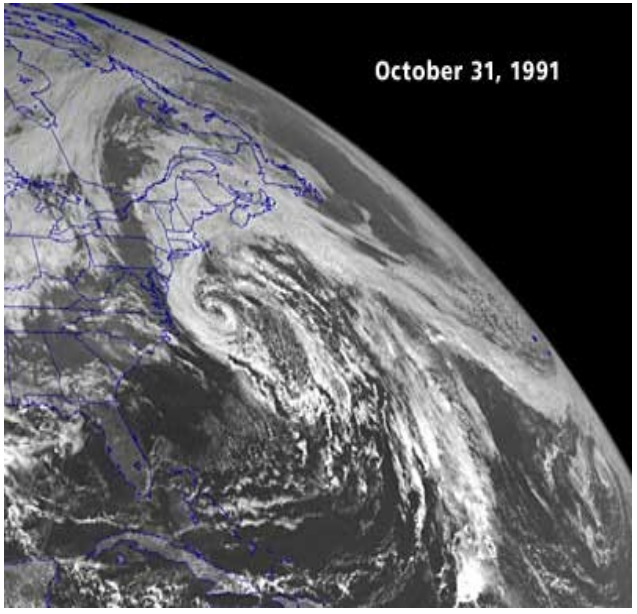
Satellite Interpretation

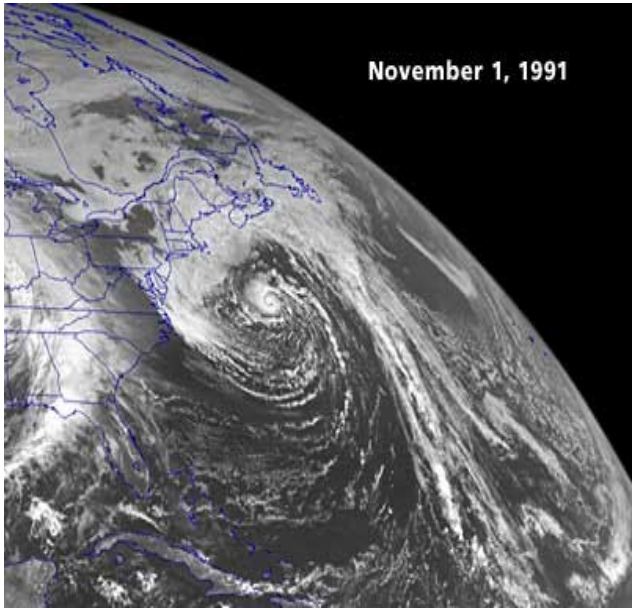




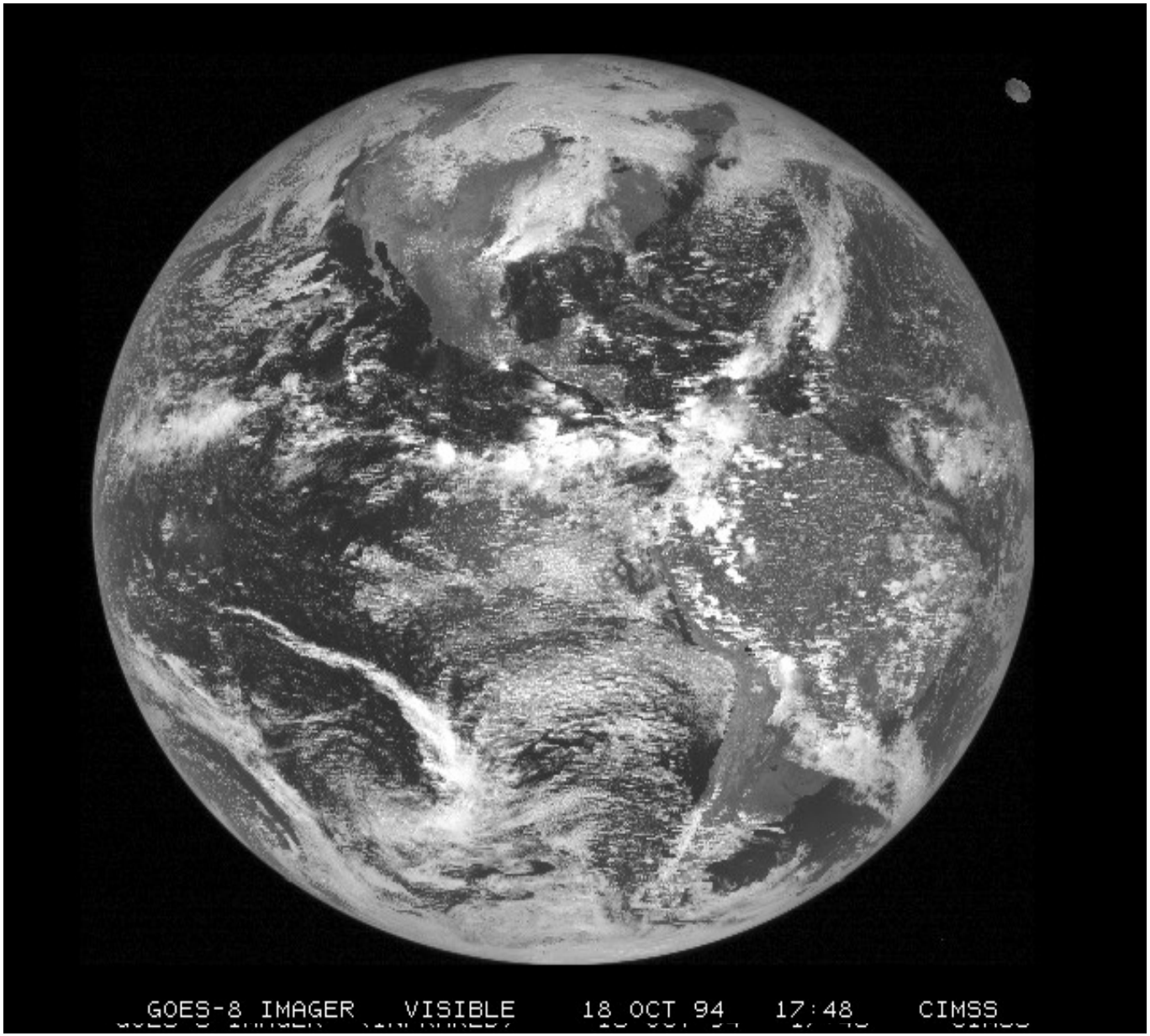








Satellite Interpretation




Questions?